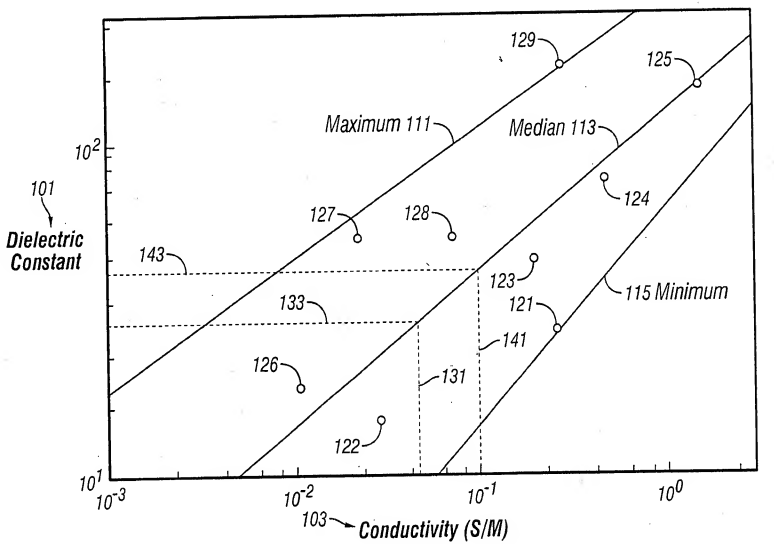
129
125
Maximum 111
Median 113
10^2
101
Dielectric Constant
127
128
124
143
123
115 Minimum
133
121
141
126
131
122
10^1
10^{-3}
10^{-2}
10^{-1}
10^0
103
Conductivity (S/M)

FIG. 1

FIG. 2

FIG. 3

FIG. 4

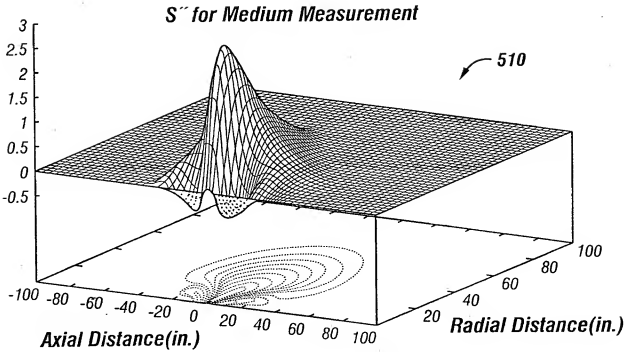
S'' for Medium Measurement
510
3
2.5
2
1.5
1
0.5
0
-0.5
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 5A

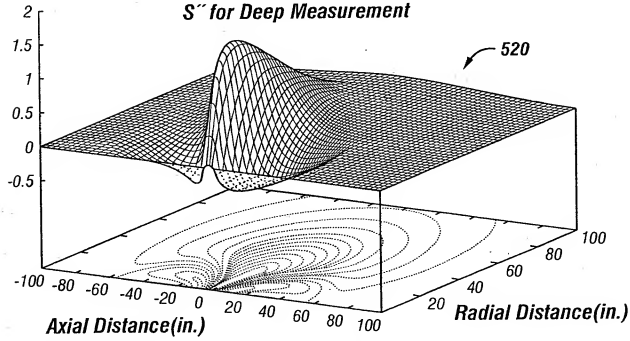
S'' for Deep Measurement
520
2
1.5
1
0.5
0
-0.5
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 5B

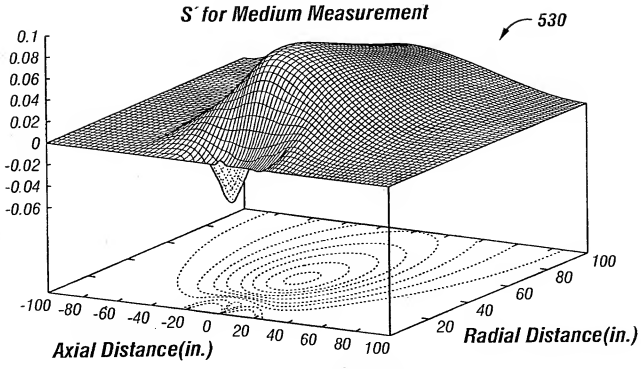
S´ for Medium Measurement
530
0.1
0.08
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 5C

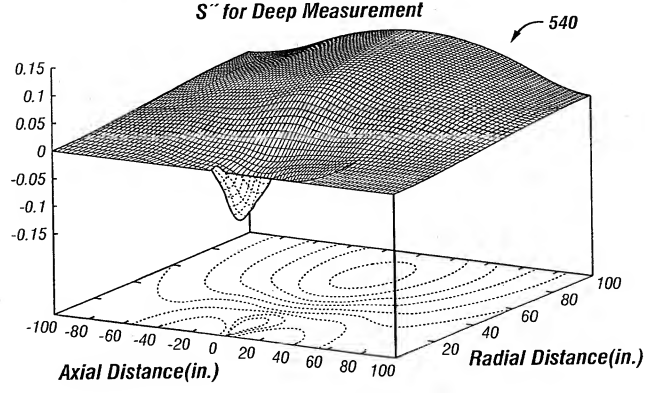
S´´ for Deep Measurement
540
0.15
0.1
0.05
0
-0.05
-0.1
-0.15
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 5D

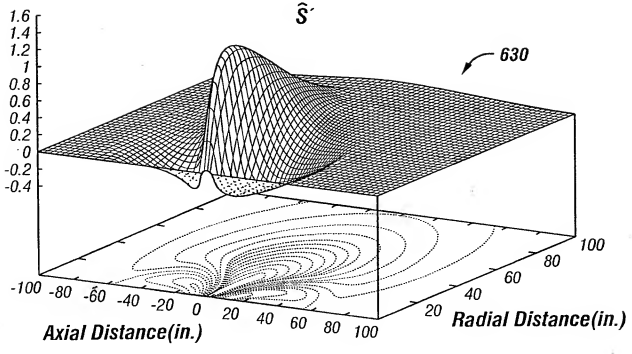
$\hat{S}'$
630
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 6C

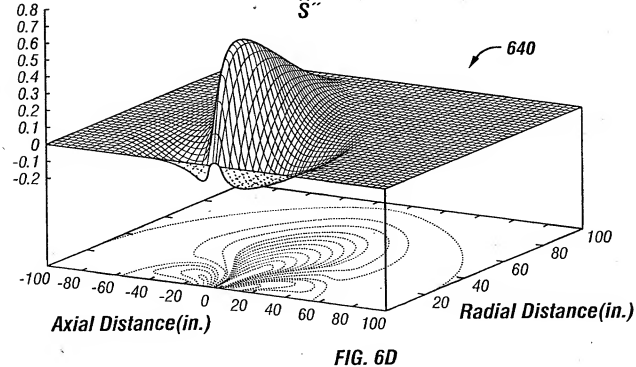
$\hat{S}''$
640
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
-0.2
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 6D

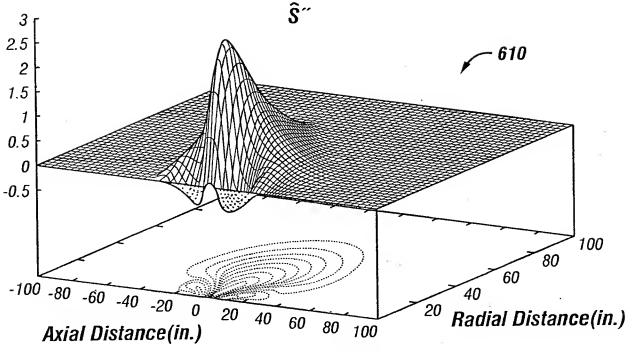
$\hat{S}''$
610
3
2.5
2
1.5
1
0.5
0
-0.5
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 6A

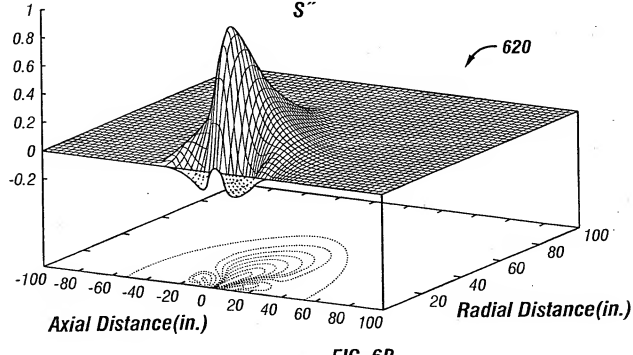
$\hat{S}''$
620
1
0.8
0.6
0.4
0.2
0
-0.2
-100 -80 -60 -40 -20 0 20 40 60 80 100
Axial Distance(in.)
20 40 60 80 100
Radial Distance(in.)

FIG. 6B

Background	Medium	Deep Measurement		Medium Measurement	
sig0	eps0	I[s´]	I[s˝]	I[s´]	I[s˝]
5.000	10.0	-0.159	0.160	-0.155	0.163
2.000	10.0	-0.249	0.255	-0.235	0.261
1.000	10.0	-0.346	0.363	-0.313	0.373
0.500	10.0	-0.476	0.519	-0.400	0.528
0.200	10.0	-0.701	0.833	-0.506	0.810
0.100	10.0	-0.897	1.18	-0.555	1.07
0.050	10.0	-1.09	1.64	-0.564	1.35
0.020	10.0	-1.27	2.39	-0.518	1.70
0.010	10.0	-1.32	3.01	-0.458	1.92
0.005	10.0	-1.32	3.61	-0.397	2.10
5.000	50.0	-0.159	0.160	-0.155	0.162
2.000	50.0	-0.249	0.255	-0.235	0.261
1.000	50.0	-0.347	0.363	-0.314	0.372
0.500	50.0	-0.479	0.517	-0.402	0.527
0.200	50.0	-0.710	0.826	-0.513	0.807
0.100	50.0	-0.923	1.17	-0.573	1.07
0.050	50.0	-1.15	1.61	-0.600	1.35
0.020	50.0	-1.46	2.33	-0.598	1.71
0.010	50.0	-1.17	2.91	-0.593	1.94
0.005	50.0	-1.98	3.41	-0.605	2.12
5.000	100.0	-0.159	0.160	-0.155	0.162
2.000	100.0	-0.249	0.255	-0.235	0.260
1.000	100.0	-0.348	0.362	-0.315	0.371
0.500	100.0	-0.482	0.515	-0.405	0.526
0.200	100.0	-0.721	0.818	-0.523	0.804
0.100	100.0	-0.953	1.15	-0.595	1.06
0.050	100.0	-1.23	1.57	-0.645	1.34
0.020	100.0	-1.68	2.21	-0.699	1.70
0.010	100.0	-2.07	2.63	-0.751	1.91
0.005	100.0	-2.45	2.89	-0.808	2.05

FIG. 7

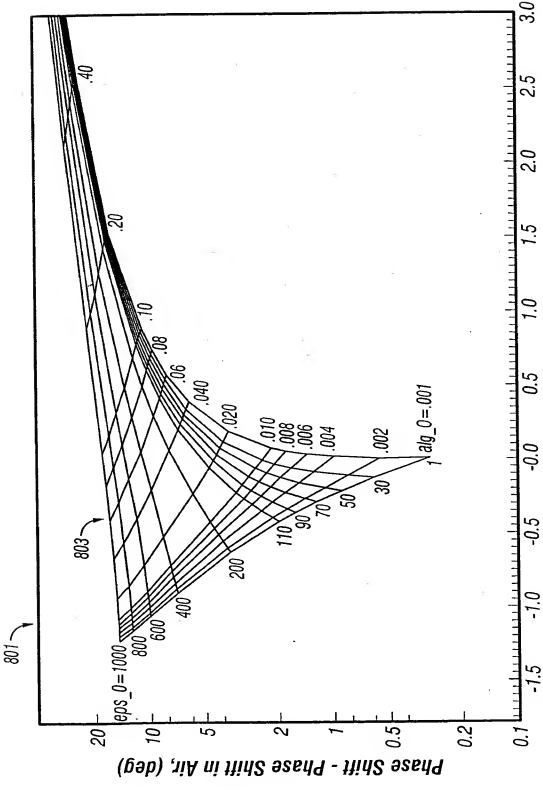
801
803
eps_0=1000
800
600
400
200
110
90
70
50
30
.002
.004
.006
.008
.010
.020
.040
.06
.08
.10
.20
.40
alg_0=.001
Phase Shift - Phase Shift in Air, (deg)
Atten - Atten in Air, (db)
20
10
5
2
1
0.5
0.2
0.1
-1.5
-1.0
-0.5
-0.0
0.5
1.0
1.5
2.0
2.5
3.0

FIG. 8

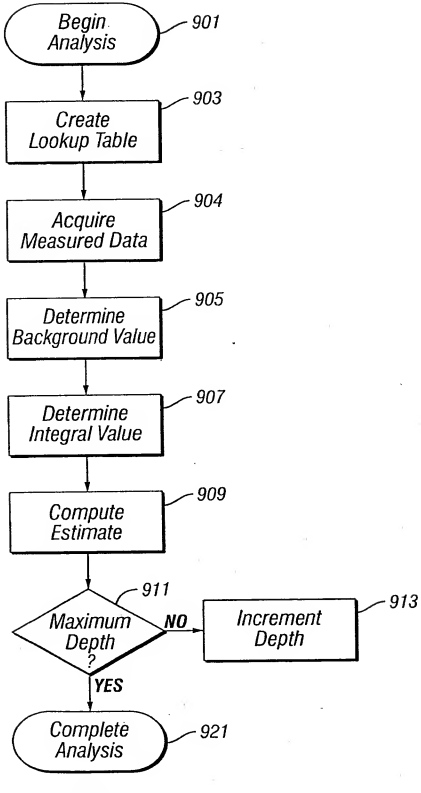
Begin Analysis
901
Create Lookup Table
903
Acquire Measured Data
904
Determine Background Value
905
Determine Integral Value
907
Compute Estimate
909
Maximum Depth ?
911
NO
Increment Depth
913
YES
Complete Analysis
921

FIG. 9

1/sigma	eps_rel	db_pt	db_man	deg_pt	deg_man
0.1	35	16.39681	16.34921	127.5789	126.7759
0.16	35	12.36776	12.35717	100.1192	99.43253
0.26	35	9.218385	9.238105	78.29757	77.74387
0.41	35	6.771087	6.813523	60.93389	60.52257
0.66	35	4.885574	4.94271	47.10585	46.83735
1.05	35	3.450289	3.51429	36.09731	35.96213
1.68	35	2.375379	2.439275	27.35548	27.33459
2.69	35	1.587098	1.645417	20.45383	20.52076
4.31	35	1.023677	1.072881	15.05909	15.18367
6.9	35	0.632716	0.671291	10.90276	11.05577
11.04	35	0.369951	0.398108	7.759132	7.91643
17.67	35	0.198911	0.218012	5.431487	5.576438
28.28	35	9.08E-02	0.10272	3.746272	3.870013
45.27	35	2.41E-02	3.07E-02	2.552769	2.652737
72.47	35	-1.65E-02	-1.36E-02	1.72462	1.802352
115.99	35	-4.11E-02	-4.07E-02	1.160437	1.219516
185.66	35	-5.60E-02	-5.74E-02	0.782376	0.826956
297.18	35	-6.53E-02	-6.78E-02	0.532895	0.566854
475.68	35	-7.12E-02	-7.44E-02	0.37062	0.397166
761.4	35	-7.50E-02	-7.86E-02	0.266387	0.287952
1218.73	35	-7.73E-02	-8.13E-02	0.200079	0.218386
1950.76	35	-7.89E-02	-8.30E-02	0.158176	0.174389
3122.48	35	-7.98E-02	-8.41E-02	0.131809	0.14669
4997.98	35	-8.04E-02	-8.48E-02	0.115262	0.129303
8000	35	-8.08E-02	-8.52E-02	0.104896	0.118408

FIG. 10

1/sigma	eps_rel	db_pt	db_man	deg_pt	deg_man
500	10	-1.64E-02	-1.69E-02	0.286526	0.303246
500	12.47	-2.18E-02	-2.26E-02	0.292002	0.309431
500	15.55	-2.86E-02	-2.98E-02	0.299324	0.317704
500	19.39	-3.71E-02	-3.87E-02	0.309207	0.328873
500	24.18	-4.78E-02	-4.99E-02	0.322653	0.344071
500	30.16	-6.10E-02	-6.37E-02	0.341062	0.364877
500	37.61	-7.75E-02	-8.10E-02	0.36638	0.393481
500	46.9	-9.79E-02	-0.1023	0.40128	0.43288
500	58.48	-0.12309	-0.12865	0.449408	0.487148
500	72.93	-0.15417	-0.16101	0.515698	0.561768
500	90.94	-0.19227	-0.20057	0.606764	0.664038
500	113.41	-0.23871	-0.24861	0.731372	0.803555
500	141.42	-0.29495	-0.30651	0.900999	0.992753
500	176.36	-0.36254	-0.37568	1.130442	1.24747
500	219.92	-0.44301	-0.45747	1.438431	1.58746
500	274.25	-0.53778	-0.55303	1.848175	2.036773
500	342	-0.64802	-0.66312	2.387711	2.623872
500	426.48	-0.77442	-0.78801	3.089918	3.38135
500	531.83	-0.91703	-0.92722	3.992076	4.345172
500	663.21	-1.07503	-1.07943	5.134856	5.5534
500	827.04	-1.24665	-1.24246	6.560776	7.044546
500	1031.34	-1.42914	-1.41329	8.312291	8.855778
500	1286.11	-1.61887	-1.5883	10.42983	11.02138
500	1603.81	-1.81159	-1.76358	12.95017	13.57184
500	2000	-2.00282	-1.93525	15.90568	16.53382

FIG. 11

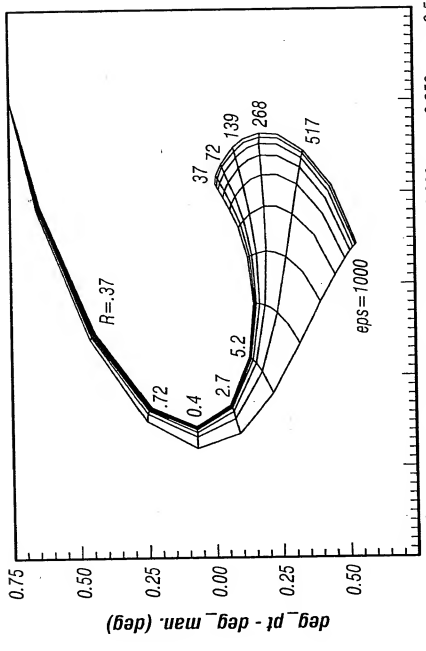
0.75
0.50
0.25
0.00
0.25
0.50
deg_pt - deg_man. (deg)
-0.100
-0.750
-0.500
-0.250
-0.000
-0.250
-0.500
deg_pt - deg_man. (db)
2 MHz, Medium Measurement, 7.00 Mandrel
R=.37
.72
0.4
2.7
5.2
37
72
139
268
517
eps=1000

FIG. 12

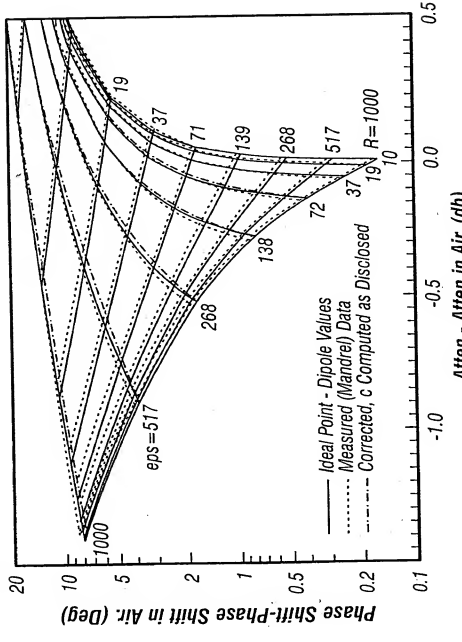
Phase Shift-Phase Shift in Air, (Deg)
20
10
5
2
1
0.5
0.2
0.1
1000
eps=517
268
138
72
37
19
10
19
37
71
139
268
517
R=1000
Ideal Point - Dipole Values
Measured (Mandrel) Data
Corrected, c Computed as Disclosed
-1.0
-0.5
0.0
0.5
Atten - Atten in Air, (db)

FIG. 13